



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Weber et al.

Docket: 2002DE122

Serial No.: 10/523,676

Group Art Unit: 1755

Filed: 2/2/2005

Examiner: Green, Anthony J.

For: Pigment Preparations Based On Diketopyrrolopyrrole Pigments For
The Undistorted Pigmentation of Partially Crystalline Plastics

DECLARATION UNDER 37 CFR § 1.132

1. I, Dr. Matthias Ganschow, state that I am a resident of D-65195 Wiesbaden, Federal Republic of Germany; that I am a citizen of the Federal Republic of Germany; that I am a chemist having graduated at the University of Bremen, Federal Republic of Germany; that I am one of the inventors of U.S. Patent Application Serial No. 10/523,676; for "Pigment Preparations Based on Diketopyrrolopyrrole Pigments for the Undistorted Pigmentation of Partially Crystalline Plastics," that I consider myself qualified, by my knowledge of chemistry, and especially of organic pigments and by my 5 years' experience in this field; that I can make the following statements:

2. In order to show that the pigment preparations of U.S. Patent Application Serial No. 10/523,676 display a significantly lower warpage effect on partially crystalline plastics compared to pigment preparations according to EP 1,104,789 the following experiments were carried out.

A) Test conditions

The influence on the warpage propensity of polyolefin by a diketopyrrolopyrrol pigment preparation was tested on a ready-produced injection molding in the form of a plaque. After aging and cooling, the dimensions of the plaque (length, width) were measured and the degree of warpage was determined in comparison to a non pigmented plaque.

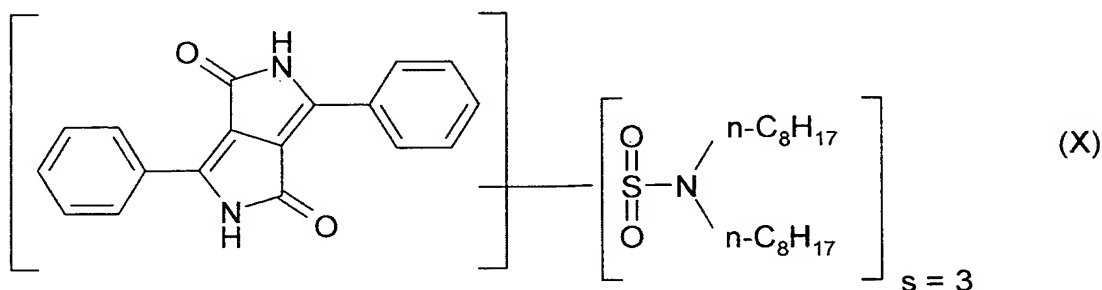
The pigment preparation was used to pigment polyethylene plaques (600 g of ®Novolen and 0.6 g of pigment preparation) and warpage was determined.

Method: Shrinkage testing of organic pigments in injection-molded polyethylene. A

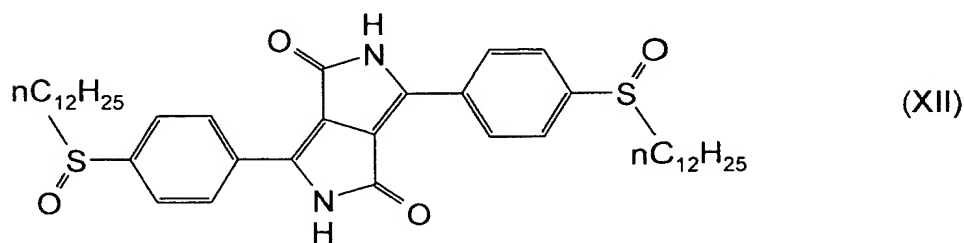
rectangular plaque was molded with film gate and the dimensions 60 by 60 mm at 280°C. After aging and cooling, evaluation was by measurement along and across the direction of molding. For each pigment tested 10 moldings were produced and measured out, the respective average value being employed. The control used was 10 moldings from nonpigmented plastic.

1) Representing the subject matter of U.S. Patent Application Serial No. 10/523,676:

Sample 1: Pigment preparation of Example 1 of U.S. Patent Application Serial No. 10/523,676 (= C.I. Pigment Red 254 + pigment dispersant of formula (X))



Sample 2: Pigment preparation of Example 6 of U.S. Patent Application Serial No. 10/523,676 (= C.I. Pigment Red 254 + pigment dispersant of formula (XII))



2) Representing the subject matter of EP 1,104,789:

Sample 3: Pigment preparation of C.I. Pigment Red 254 without pigment dispersant

Sample 4: Pigment preparation of C.I. Pigment Red 254 + pigment dispersant of Ex. 2a of EP 1,104.789

Sample 5: Pigment preparation of C.I. Pigment Red 254+ pigment dispersant of Ex. 3a of EP 1,104.789

Sample 6: Pigment preparation of C.I. Pigment Red 254+ pigment dispersant of Ex. 8a of EP 1,104.789

B) Results:

Sample :	Warpage in %
Sample 1 :	19
Sample 2:	10
Sample 3:	44
Sample 4:	44
Sample 5:	49
Sample 6:	46

The results clearly show that a pigment preparation according to U.S. Patent Application Serial No. 10/523,676 has a significantly smaller influence on the warpage propensity of polyolefin. It is also evident that a pigment dispersant according to EP 1,104,789 has nearly no influence on the warpage behaviour of the base pigment at all.

C) Evaluation of Results:

The coloration of partly crystalline plastics with organic pigments frequently gives rise to warpage or distortion phenomena. The pigmentation of large-volume injection moldings, especially those composed of polyethylene, leads to deformation, shrinkage and cracking (internal stresses), rendering the colored articles unusable, depending on the field of application. Bottle crates, for example, are likely to become unstackable by loss of shape.

These disadvantages relate to the majority of organic pigments, whereas inorganic pigments and a minority of organic pigments behave neutrally. It is believed that pigments act as nucleation sites during the solidification of the polymer melt and thus lead to a polymer which is prone to warp/distort.


As a consequence, there is a strong desire in plastic industry to employ colorants which have little tendency to warpage or distortion.

It was quite unexpected for a person skilled in the art that particular pigment dispersants could be able to reduce the intrinsic warpage effect of a

diketopyrrolopyrrol pigment. This finding was quite surprising in view of the state of the art, as represented by EP 1,104,789, wherein similar pigment dispersants are used in combination with diketopyrrolopyrrol pigments (base pigment) which in fact have no influence on the warpage behaviour of that base pigment.

3. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Frankfurt on the Main
June 23, 2006


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(Matthias Ganschow)